Paper 12

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte CURTIS S. EIDE,
WILLIAM A. THOMPSON
and
JAMES L. NAYLOR

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Appeal No. 2002-2238
Application No. 09/107,768

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ON BRIEF

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Before LEE, TIERNEY, and MOORE, *Administrative Patent Judges*.

MOORE, *Administrative Patent Judge.*

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the final rejection of claims 1-30, which are all of the pending claims of this application.

REPRESENTATIVE CLAIMS

As noted by the examiner, the appellants have argued the claims in multiple groups. However, as all rejections are reversed, we shall focus our discussion on the independent claims. The independent claims read as reproduced below:

1. A method of replacing a failed hardware device in a computer, the failed hardware device having associated therewith a resource that interfaces the failed hardware device with at least one application executing in the computer, the method comprising:

(a) removing power from the failed hardware device in response to user input received through a control panel on the computer;

(b) after user replacement of the failed hardware device with a replacement hardware device, supplying power to the replacement hardware device in response to user input received from the control panel; and

(c) automatically associating the resource with the replacement hardware device after power is supplied to the replacement hardware device.

8. An apparatus, comprising:

(a) a control panel configured to receive user input;

(b) a memory in which is resident a resource that is configured to provide an interface between a hardware device coupled to the apparatus and at least one application executing in the apparatus; and

(c) a program, resident in the memory, the program configured to selectively remove power from a failed hardware device and supply power to a replacement hardware device in response to user input supplied to the control panel to permit replacement of the failed hardware device with the replacement hardware device; and, in response thereto, to automatically associate the resource with the replacement hardware device after power is supplied to the replacement hardware device.

14. A program product, comprising:

(a) a program for use in replacing a failed hardware device electrically coupled to a computer with a replacement hardware device, the failed hardware device having associated therewith a resource that interfaces the failed hardware device with at least one application executing in the computer, the program configured to selectively remove power from the failed hardware device and supply power to the replacement hardware device in response to user input supplied to a control panel in the computer to permit replacement of the failed hardware device with the replacement hardware device, the program further configured to automatically associate the resource with the replacement hardware device after power is supplied to the replacement hardware device; and

(b) a signal bearing media bearing the program.

17. A method of replacing a failed controller for an external storage device coupled to a computer over a bus, the failed controller having associated therewith a resource that presents a uniform interface to at least one application on the computer, the method comprising:

(a) detecting a lock-up condition in the computer resulting from a failed attempt to access data with the external storage device;

(b) in response to detection of the lock-up condition, enabling a user to replace the failed controller with a replacement controller;

(c) after replacement of the failed controller with a replacement controller, automatically updating the resource to associate the replacement controller with the resource; and

(d) after updating the resource, recovering from the lock-up condition by automatically resuming the failed attempt to access data with the external storage device.

24. An apparatus, comprising:

(a) a bus configured to electrically couple with a controller for an external storage device;

(b) a memory in which is resident a resource that is configured to present a uniform interface to at least one application on the apparatus; and

(c) a program, resident in the memory, the program configured to detect a lock-up condition in the apparatus resulting from a failed attempt to access data with an external storage device coupled to the bus through a failed controller, and in response thereto to enable a user to replace the failed controller with a replacement controller, the program further configured to automatically update the resource to associate the replacement controller with the resource, and to automatically rectify the lock-up condition by automatically resuming the failed attempt to access data with the external storage device.

28. A program product, comprising:

(a) a program for use in replacing a failed controller for an external storage device, the failed controller coupled to a bus in a computer and having associated therewith a resource configured to present a uniform interface to at least one application on the computer, the program configured to detect a lock-up condition in the computer resulting from a failed attempt to access data with the external storage device, and in response thereto to enable a user to replace the failed controller with a replacement

controller, the program further configured to automatically update the resource to associate the replacement controller with the resource, and to automatically rectify the lock-up condition by automatically resuming the failed attempt to access data with the external storage device.

The Reference

In rejecting the claims under 35 U.S.C. §102(e) and 35 U.S.C. §103(a), the examiner relies upon the following reference:

Mahalingam 6,148,355 Nov. 14, 2000

The Rejections

Claims 1, 2, 4-6, 8-12, 14-16, and 24-27 stand rejected under 35 U.S.C. §102(e) as being anticipated by Mahalingam.

Claims 3, 7, 13, 17-23 and 28-30 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Mahalingam.

The Invention

The invention relates to concurrent maintenance of computers. (Specification, page 1, lines 20-22). More specifically, the invention is said to provide a method of replacing a failed essential hardware device needed during a concurrent maintenance operation. (Id., page 6, lines 2-8). Further details of the claimed invention are recited in claim 1 above.

The Rejection of Claims 1, 2, 4-6, 8-12, 14-16, and 24-27 Under 35 U.S.C. §102(b)

The examiner has found that Mahalingam describes a configuration management method for hot adding and replacing that incorporates removing power from a failed hardware device in

response to user input received through a control panel on the computer. After user replacement of the failed hardware, power is restored to the replacement device in response to user input through the control panel. The replacement hardware is automatically associated with the resource after power is supplied to the replacement hardware device (Paper 7, page 2, lines 11-17).

The appellants, on the other hand, assert that claim 1 requires the removal of power from the failed hardware device, and the supply of power to the replacement hardware device are performed in response to user input received through a control panel on the computer. (Appeal brief, page 5, lines 25-27). The appellants admit that Mahalingam disclose that a slot on a PCI bus may be powered on or off to permit a card to be replaced with a replacement card. However, it is urged that as Mahalingam is silent as to how this powering on and off is accomplished, Mahalingam therefore fails to disclose each and every limitation of claim 1. (Appeal Brief, page 6, lines 3-10).

In the Answer, the examiner takes the position that Mahalingam inherently teaches a control panel controlling power to the device (via software or hardware). (Examiner's Answer, page 2, line 21 - page 3, line 2).

We note that when a examiner relies upon a theory of inherency, the examiner must provide a basis in fact and/or

technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. Also, the examiner has the initial burden of providing such evidence or technical reasoning. See In re Spada, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990); In re King, 801 F.2d 1324, 1327, 231 USPQ 136, 138-39 (Fed. Cir. 1986). The specification of Mahalingam notes the following:

> At step 612, the I/O to the card which is to be swapped out is suspended or frozen. Next, at step 614, power to the slot holding the card to be swapped out is turned off. Then at step 616, the user physically removes the card and replaces it with the replacement card. Next, at step 618, the power to that slot is turned back on (Column 9, lines 17-23).

We are unable to find any further more detailed description as to how the power is turned on or off. While we agree with the examiner that the power is turned on and off to the PCI slot, the examiner has not established that that is necessarily and inevitably due to the claimed user intervention via a control panel on a computer.

Pertinent portions of those claims containing this limitation are reproduced below:

For claim 1: ...removing power from the failed hardware device in response to user input received through a control panel on the computer .... after user replacement of the failed hardware device with a replacement hardware device, supplying power to the replacement hardware device in response to user input received from the control panel....

For claim 8: ...the program configured to selectively remove power from a failed hardware device and supply power to a replacement hardware device in response to user input supplied to the control panel ...

For claim 14: ...the program configured to selectively remove power from the failed hardware device and supply power to the replacement hardware device in response to user input supplied to a control panel in the computer...

The examiner has put forth no convincing evidence to support the contention that the user input is necessarily and inevitably the means by which the power is turned off and on to the PCI slot. It may just as well be automatic, in the event of lockup detection, or another software routine. The examiner has not made the required showing. Consequently, we shall reverse this rejection as it applies to claims 1, 2, 4-6, 8-12, and 14-16.

Turning now to claim 24, the appellants correctly note that claim 24 has not been specifically addressed in the office actions (Appeal Brief, page 8, lines 5-12), and we observe that failure has been carried forward in the Examiner's Answer.

In the § 102 rejection set forth on pages 2-3 of paper 7, the Examiner has merely described the reference without specifically identifying which portions of the reference disclosures that are considered to satisfy each and every limitation of each of the claims on appeal (i.e., at least those appealed claims which have been separately grouped and argued by the appellants). See the

Manual of Patent Examining Procedure (MPEP) § 2131, particularly the subsection entitled "TO ANTICIPATE A CLAIM, THE REFERENCE MUST TEACH EVERY ELEMENT OF THE CLAIM" (8th Edition, Rev. 1, Feb. 2003).

Claim 24 has, for example, different elements than claim 1, including:

1) a program, resident in the memory,

2) the program configured to detect a lock-up condition in the apparatus resulting from a failed attempt to access data with an external storage device coupled to the bus through a failed controller, and

3) in response thereto to enable a user to replace the failed controller with a replacement controller,

4) the program further configured to automatically update the resource to associate the replacement controller with the resource, and

5) to automatically rectify the lock-up condition by automatically resuming the failed attempt to access data with the external storage device.

These elements have not been addressed in the final rejection or in the Examiner's Answer.

Anticipation under 35 U.S.C. Section 102(e) requires that "each and every element as set forth in the claim is found, either

expressly or inherently described, in a single prior art reference." Verdegaal Bros., Inc. v. Union Oil Co., 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a prima facie case of unpatentability. If that burden is met, the burden of coming forward with evidence or argument shifts to the applicant. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). Where the Examiner fails to establish a prima facie case, the rejection is improper and will be overturned. In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

The examiner has failed to establish a prima facie case of anticipation for claims 24-27; as a consequence, this portion of the rejection will be reversed as well.

We note in passing that claim 4 is included in this statement of rejection as being anticipated by Mahalingam. Claim 4 depends from Claim 3, which is only rejected as being rendered obvious within the meaning of 35 U.S.C. §103(a) by Mahalingam. How dependent claim 4 is alleged to be anticipated is a mystery to us. There is no explanation in the examiner's answer or the final rejection relating to claim 4.

The Rejection of Claims 3, 7, 13, 17-23, and 28-30 Under 35 U.S.C. §103(a)

The examiner has found that Mahalingam discloses all of the claimed invention except for powering down the entire bus and restoring power when the failed device has been swapped. The examiner has additionally taken official notice of a fact as follows:

> Regarding Claim 3, Official Notice is take [sic] with regards to the removable [sic] of power to an entire bus during a hot swap and restoring the power to the entire bus when it has finished, in an analogous art to enable a hot swap operation without having the added the [sic] complexity of controlling power to each device on the bus individually. By powering down the entire bus it reduces the number of circuits and control lines needed for hot plug, but it does limit create [sic] bus down time during hot swapping (Paper 7, page 3, lines 10-15).[1]

The appellants have not provided any additional arguments as regards claim 3, other than to note that claim 3 was rejected under a different statutory basis.

As we have reversed the rejection of claim 1, from which claim 3 depends, we likewise reverse this rejection for the

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1 Although the appellants have not challenged this finding directly, we observe that the wording of the finding itself is somewhat vague. In other words, we find it difficult to ascertain what exactly the examiner has taken official notice of. Does the examiner mean to say that it is well known in the art to turn off the entire bus in a hot swap operation for computer maintenance? Or does this finding pertain to an undefined "analogous art?" Or that it is known to shut the whole bus down instead of a single socket in order to reduce the complexity of the system? As we have no way of knowing the examiner's mindset other than through the written record, it is imperative that a clear statement of any Official Notice be made. By way of observation, we query whether shutting down the entire bus (as opposed to a single slot) would impair other functions and data access, as suggested by the

reasons stated in the reversal of the rejection of claim 1, above.

examiner in the finding itself.

Turning now to claims 7, 13, 17-23, and 28-30, the examiner has found that Mahalingam discloses all of the claimed invention except a lock-up condition triggering a failed hardware indication (Examiner's Answer, page 3, last two lines).

Again, the examiner has taken Official Notice in establishing a prima facie case of obviousness as follows:

> Official Notice is take [sic] with regards [sic] to the use of Lock-ups as failed hardware indications in the art, Lock-ups are a good indicator that a hardware device is malfunctioning. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a lock-up condition triggering the failed hardware indication, as is know [sic] in the art, given Lock-ups are a good indicator that a hardware device is malfunctioning because when a device locks-up meaning not responding, it is pretty clear that the hardware is malfunctioning and may need to be replaced. (Paper 7, page 4, lines 1-7).

The appellants urge that this rejection is based on hindsight reasoning, as Mahalingam contains no automated failure detection or initiation of replacement operation in response to that detection. (Appeal Brief, page 12, lines 6-9).

We are in agreement with the appellants that there is no evidence of any suggestion in the cited reference to modify Mahalingam to accomplish what is claimed. This is an instance where hindsight has been utilized to reconstruct the appellants' invention. See In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967) ("The Patent Office has the initial duty of

supplying the factual basis for its rejection. It may not . . . resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies" in the cited references.)

Finally, we also observe that claim 17 recites numerous elements, including:

(1) detecting a lock-up condition in the computer resulting from a failed attempt to access data with the external storage device;

(2) in response to detection of the lock-up condition, enabling a user to replace the failed controller with a replacement controller;

(3) after replacement of the failed controller with a replacement controller, automatically updating the resource to associate the replacement controller with the resource; and

(4) after updating the resource, recovering from the lock-up condition by automatically resuming the failed attempt to access data with the external storage device.

As correctly pointed out by the appellants, nowhere has the examiner pointed to the description of these claimed elements, or their teaching or suggestion, in the cited art.

Accordingly, for the reasons above, we reverse this rejection.

Summary of Decision

The rejection of Claims 1, 2, 4-6, 8-12, 14-16, and 24-27 under 35 U.S.C. §102(e) as being anticipated by Mahalingam is reversed.

The rejection of Claims 3, 7, 13, 17-23 and 28-30 under 35 U.S.C. §103(a) as being unpatentable over Mahalingam is reversed.

REVERSED

JAMESON LEE Administrative Patent Judge	)	
MICHAEL P. TIERNEY Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
JAMES T. MOORE Administrative Patent Judge	)	

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